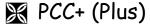## TECHNICAL OVERVIEW AND SYSTEM REQUIREMENTS FOR V. 1.2

PCC+ (PCC Plus) Customizable Encounter Form is a new application released by the IHS Information Technology Support Center (ITSC) for IHS-wide deployment in June 2001. This application enables PCC users to build a customized encounter form in real time for each patient visit that combines the best features of the PCC encounter form, superbill and health summary in one integrated document. These documents are generated locally on a laser printer before each clinic visit, and they fully replace their traditional PCC counterparts.

The basic functionality of PCC+ is to provide a comprehensive link between the PCC database and Microsoft Word®. This is accomplished through a Word feature called Mail Merge. Normally, Mail Merge is used to create form letters by imbedding database "fields" into a document. A mail merge field is linked to a particular location in the database. The typical form letter may contain 5-10 fields. The new encounter forms may contain *thousands* of fields!

The process of generating an encounter form or health summary has four stages:

1. Patient check-in.
2. PCC data extraction
3. Data transmission to, and Mail Merge by, the Print Server
4. Document Generation

The overall process is complicated by background processing, multiple servers/operating systems, and complex connectivity issues. Extensive technical and installation documentation and support are provided to participating sites.

- **Background jobs** serve two functions:

    1. They improve the performance of the check-in process.

    2. They buffer the output of the data extraction process to prevent the Print Service from being overloaded.

- PCC+ requires that **separate servers**, each running a different operating system, must work in concert to generate documents:

    1. The traditional RPMS Server - typically a Unix RISC box running the PCC on Micronetics® MUMPS.

    2. A Print Server (or servers) - a new Windows 2000 PC running Office 2000 and the PCC+ Print Service. Two print servers are strongly recommended.

- Finally there must be reliable, fast **network connectivity** to ensure the following:

    1. The RPMS server must have a bi-directional LAN, TCP/IP connection to the Print Server.

    2. The Print Server must have network connections (LAN/WAN, TCP/IP) to all printers that generate encounter form documents.

    3. The Print Server must continuously run FTP and Remote control services so that the system can be upgraded and checked remotely by support personnel. This functionality is already available on your RPMS server.

For further information about participating in PCC+ implementation, contact Theresa Cullen, MD;
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REQUIREMENTS AND IMPLEMENTATION

PCC+ implementation is a complex process involving the installation of software on multiple servers as well as establishing network connectivity. Extensive technical and installation documentation and support are provided to participating sites.

- *Kernel,* V. 8, patch 4 or later. Kernel Part III can be installed.
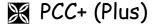
- *FileMan*, V.21. or 22

- *Mandatory RPMS* packages
  - Health Summary-APCH V2.0 patch 07
  - PCC Data Entry - APCD V2.0 patch 07
  - IHS Utilities - XB V3.0 patch 08

- *Optional* (but recommended) *RPMS* packages
  - Women's Health BW V2.0 patch 07
  - Immunization - BI V7.0
  - Medical Administration Service - MAS V5.0 through patch 07 (Scheduling is part of MAS)

- *Network:* PCC+ has been developed and certified on NT networks. Version 1.2 is theoretically compatible with Novel Netware, but it has not been certified in this environment. Netware users can access printers directly by installing a NIC card in each PCC+ printer as described in the *PCC+ Technical Manual*.

- *LAN connectivity*: 10 MB LAN minimum. *Note*: A 100 MB LAN is preferred, particularly if your site has many users that access web pages.

- *WAN connectivity:* Must be able to provide FTP and Telnet access to the local RPMS server and print server within the IHS firewall. If multiple sites are connected to a single print server over the WAN, the minimum recommended throughput speed is 256 KB, bi-directional. Faster speeds (greater than 640 KB) are recommended. *Note*: most sites will not be using a single print server to serve multiple sites.

- *Connectivity/file transfer freeware* for the print server: VNC (remote control software) and WS-FTP (FTP service).

- *Print Server(s):* A 500+ mhz PC with at least 120 meg ram, 3 GB hard drive, 10/100 Ethernet card. The print server must be able to run "off the shelf" copies of Microsoft Windows 2000 and Microsoft Office 2000. *Note***:** Installing a second (backup) print server with identical configuration is strongly recommended.

  Minimum requirements.

  - Intel PIIi 733 Mhz Processor
  - 56k V.90 Fax/Modem
  - AGP VGA 8m Video Adapter
  - 10/100 Smart NIC (Intel Or 3 Com)
    - Intel Mother Board
    - Micron Memory (Or Equal Quality)
  - ECP/EPP Printer Port
  - 128mb -100mhz SDRAM
  - 10 Or More GB Hard Drive
  - 15" VGA Monitor, .28 Digital Display

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- 45x CDROM
- 1.44 Floppy Disc Drive
- 104 PS/2 Keyboard
- Logitec PS/2 Internet Mouse
- 2 Year Hardware Warranty
- Ms Windows 2000 Pro
- Ms Office 2000 SBE
- Port Switch And Cables For Ps/2 Keyboard, Mouse & VGA Monitor

- Print Server software: A licensed, "off the shelf" CD ROM copy of the Microsoft Windows 2000 and Microsoft Office 2000 for each print server. (Even though PCC+ has been successfully tested on Windows NT 4.0 and Office 97, we do not recommend these products and will not support them.). *Note*: some hardware vendors such as Compaq pre-load their own *proprietary* versions of the Windows operating system on their computers. Proprietary versions of Windows 2000 cannot be guaranteed as compatible with the PCC+ application. Therefore, they are not recommended and will not be supported by ITSC. *Note:* PCC+ will NOT operate properly with Office 98 or Office XP.

- Printer(s): HP 1100 - 5000 series with at least 5 MB of on-board RAM. Duplex printing capability is supported but not required. Network printers (direct network connection to a printer with a static IP address via NIC card) are supported but not required. *Note*: Other laser printers capable of 600 dpi and 12+ ppm can be used but experience with non-HP printers has not been satisfactory. Ink jet printers should *not* be utilized in live clinical environments.

Laser Printer Requirements

# of patients/hour per clinic or printer group	Printer Type	Minimum Memory
< 5 / hour	Any laser	
5 – 15 / hour	HP 1000 series	8 pages/min. = Or > 2 MB memory (4 MB is better) 600 x 600 DPI
16 – 60 / hour	HP 4000 series	17 pages/min. = Or > 8 MB memory 1200 x 1200 DPI
> 60 / hour	Multiple HP 4000 series	17 pages/min. = Or > 8 MB memory 1200 x 1200 DPI
		*size of paper tray and paper handling are also considerations **duplex printing may be considered

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